

The Examiner is requested to review and approve these changes so that Formal Drawings may be submitted incorporating such changes.

**IN THE SPECIFICATION**

Copies of a clean substitute specification and a marked up substitute specification is submitted herewith. Approval is requested.

The Examiner is invited, particularly, to the portion of the specification discussing Figures 16A-B. As originally presented, reference numerals 45, 46, 49 and 50 depicted in Figures 16(a) and 16(b) were not explicitly referenced in the specification. As the specification is amended, reference numerals 45 and 46 correspond to TAB tapes, reference numeral 49 corresponds to the wiring section or signal leads, and reference numeral 50 corresponds to the described electromagnetic shielding film, as generally indicated in the revised pages of the specification. The express linkage between the subject matter illustrated in the drawings and the corresponding subject matter described in the specification is not believed to introduce any new matter.

**THE 35 U.S.C. § 112 REJECTIONS**

Claims 1 and 5-9 were rejected under 35 U.S.C. § 112, second paragraph, as being indefinite.

**CLAIM 1**

The Examiner states that the last two lines of claim 1 are indefinite "because it is unclear whether placement of the film within 150 micrometers of the wiring section and the film having the claimed resistance reduces the cross talk or whether some other

element is required to perform this function.” The Examiner continues, stating “it is unclear whether this function is inherent to the already recited structure or whether it implied structural limitations not explicitly recited in the claim.”

Applicants respectfully traverse. Definiteness of claim language must be analyzed in light of the content of the application disclosure, the teachings of the prior art, and the claim interpretation that would be given by one of ordinary skill in the art at the time the invention was made. The essential inquiry is whether the claims set out and circumscribe a particular subject matter with a *reasonable degree* of clarity.

Claim 1 sets forth functional language. A functional limitation is an attempt to define something by what it does, rather than by what it is (e.g., as evidenced by its specific structure). There is nothing inherently wrong with defining some part of an invention in functional terms. Functional language does not, in and of itself, render a claim improper. *In re Swinehard*, 439 F.2d 210 (CCPA 1971). A functional limitation must be evaluated and considered, just like any other limitation of the claim, for what it fairly conveys to a person of ordinary skill in the pertinent art in the context in which it is used.

It is respectfully submitted that one skilled in the art, in view of Applicant’s specification, would understand Applicant’s disclosure relating to the above-noted functional language to relate the objective range extending from 10 MHz to 15 GHz in sinusoidal frequency to the claimed wiring board and the effects of such object range frequencies (i.e., current through the wiring section) on the generation of magnetic fields (H) and eddy currents (Is) (*see, e.g.*, page 9, line 27 to page 10, line 5). The eddy current Is reduces a magnetic flux density of the magnetic flux and the reduction in magnetic flux

density decreases inductance (*see, e.g.*, page 10, line 17 to page 11, line 5; *see also* page 11, lines 17-28).

Claim 1 thus submitted to comport with 35 U.S.C. § 112, second paragraph, as the claim sets out and circumscribes a particular subject matter with a *reasonable degree* of clarity. Such language has been held to be proper under 35 U.S.C. § 112, second paragraph, as it sets forth definite boundaries on the patent protection sought. *In re Barr*, 444 F.2d 588 (CCPA 1971). As such, the last two lines of claim 1 are not indefinite and it is requested that this legally improper rejection be withdrawn.

Applicants also traverse the remaining aspects of the 35 U.S.C. § 112, second paragraph rejection of claim 1. The Examiner states that line 5 should recite “the distance” instead of “a distance” and that line 6 should recite “the volume specific resistance” instead of “a volume specific resistance”. Definiteness of claim language must be analyzed in light of the content of the application disclosure, the teachings of the prior art, and the claim interpretation that would be given by one of ordinary skill in the art at the time the invention was made. The essential inquiry is whether the claims set out and circumscribe a particular subject matter with a reasonable degree of clarity.

Applicants have set forth, in detail, a claim providing such clarity. Whether more suitable language or modes of expression are available in not the requisite test. In the present claim, the proposed change is a distinction without a difference as the change does not improve the already clear intent of the recitation. Claim 1 is submitted to comport with 35 U.S.C. § 112, second paragraph.

Withdrawal of this 35 U.S.C. § 112, second paragraph rejection of claim 1 is therefore requested in accord with the above clarification of the record and above remarks.

#### CLAIM 5

Regarding claim 5, the Examiner states that in the last three lines “flowing eddy current” is indefinite. The Examiner comments that “[t]he insulating layer does not perform any flowing function.”

The last three lines recite, in full, “wherein said insulating substrate disposed on said plate-like ground layer reduces a self inductance of said plurality of leads *by flowing eddy current through said plate-like ground layer.*” (emphasis added). It is facially clear that the eddy current flows through the plate-like ground layer, as recited. The Examiner is, however, correct in her assertion that “[t]he insulating layer does not perform any flowing function”.

As claim 5’s recitation of “flowing eddy current” in the last three lines sets out and circumscribes a particular subject matter with a reasonable degree of clarity, analyzed in light of the applicant’s disclosure, the teachings of the prior art, and the claim interpretation that would be given by one of ordinary skill in the art, claim 5 is submitted to fully comply with 35 U.S.C. § 112, second paragraph.

#### CLAIM 6

The Examiner rejects claim 6 under 35 U.S.C. § 112, second paragraph, stating that the recitation of “being formed on a ground layer” on claim 6, line 2, “is unclear”.

Claim 6 recites, in accord with the April 12, 2001, Amendment:

6. The circuit board for electronic parts as claimed in claim 5, wherein said conductor forms a composite sheet together with said insulating material.

However, there is no recitation of "being formed on a ground layer" in the presently pending claim 6. The Examiner is obviously referring to an outdated, originally-filed version of claim 6. Withdrawal of this rejection is requested.

#### CLAIM 7

The Examiner rejects claim 7 under 35 U.S.C. § 112, second paragraph, stating that the insulating material does not "contain" or "include" the adhesive but instead "bears" the adhesive and alleging that "this description is confusing".

As noted above, definiteness of claim language must be analyzed in light of the content of the application disclosure, the teachings of the prior art, and the claim interpretation that would be given by one of ordinary skill in the art at the time the invention was made. The essential inquiry is whether the claims set out and circumscribe a particular subject matter with a reasonable degree of clarity. Whether more suitable language or modes of expression are available in not the requisite test.

Moreover, the Examiner's suggestion of the improved language "bears" itself serves as evidence that one skilled in the art would be able to reasonably understand the meaning of the claim language and relation between the insulating material and the adhesive, particularly in view of the specification (see, e.g., Figs. 19-20 and corresponding description).

The Applicant is entitled to be his own lexicographer as long as the meaning assigned to the term is not repugnant to the term's well known usage. See *In re Hill*, 161

F.2d 367 (CCPA 1947). The term “contains” is synonymous with the term “hold”, which has many meanings including “to cover” (e.g., “she had to *hold* her ears because of the cold”) and “to remain fastened to something” (e.g., “the anchor *held* in the rough sea”). Accordingly, the use of the term “contains” is not repugnant to the term’s well known usage and is, moreover, clearly understood in its own right.

Claim 7 is submitted to fully comply with 35 U.S.C. § 112, second paragraph.

Therefore, for the above reasons, it is submitted that claims 1 and 5-9 are in full compliance with 35 U.S.C. § 112, second paragraph. Withdrawal of this rejection is requested.

**35 U.S.C. § 112, FIRST PARAGRAPH REJECTION**

Claims 5-9 were rejected under 35 U.S.C. § 112, first paragraph, as containing subject matter which was not described in such a way as to reasonably convey to one skilled in the art that the inventor(s) had possession of the claimed invention. This rejection is traversed.

The Examiner notes that claim 5 recites “a plate-like ground layer” and “a conductor disposed on an insulating material on said plurality of leads” and alleges that “the specification does not describe a plate-like ground layer”.

Description of the claimed “plate-like ground layer” may be had by reference to page 23 of the specification, which states in part “The circuit board 1 is composed of a substrate material 3 made of an insulating material, *a plate-like ground layer 4* disposed in the substrate material 3, and a lead 5 of a predetermined pattern which is formed on the

surface of the substrate material 3” (lines 19-22)(emphasis added)(see also, page 24, lines 9 and 28; Figs. 19-20).

Thus, contrary to the Examiner’s assertion, the specification clearly describes and illustrates a plate-like ground layer.

Next, the Examiner alleges that “such a configuration is not disclosed with respect to the elected invention (paper #8) of the circuit board”. The elected invention corresponds to the imposed Grouping of Claims 1-2 and 5-9 (see paper no. 8). The preamble of Claim 5 originally recited, and still recites, “A circuit board for electronic parts, comprising: . . .”. The amendments to claim 5 in the April 12, 2001, Amendment pertain to the elected “circuit board”.

Accordingly, withdrawal of this rejection is requested.

#### **THE 35 U.S.C. § 103 REJECTION**

Claim 1 was rejected under 35 U.S.C. § 103(a) as being unpatentable over **Anderson** (U.S. Pat. No. 4,441,088). This rejection is overcome by the amendment to claim 1. Reconsideration and withdrawal of this rejection is requested.

Claim 1 provides a wiring board for a semiconductor device, comprising "a predetermined wiring section being disposed on an insulation board and an electromagnetic shielding film being placed at a position close to said wiring section, wherein a distance defined between, said wiring section and said electromagnetic shielding film is 50  $\mu\text{m}$  or less, a volume specific resistance of said electromagnetic shielding film is 30  $\mu\Omega\text{ cm}$  or less at room temperature, and wherein, over an applicable

frequency between about 10MHz to 15GHz, and inductance of said wiring section and inductive cross talk are reduced."

Accordingly, a distance defined between the wiring section and the electromagnetic shielding film is 50  $\mu\text{m}$  or less, a volume specific resistance is  $30 \mu\Omega\cdot\text{cm}$  or less at a room temperature, and an applicable frequency extends from 10 MHz to 15GHz. According to the claimed structure, wherein the distance defined between the wiring section and the electromagnetic shielding film is 50  $\mu\text{m}$  or less, reductions in magnetic flux because of the eddy current can be increased and line inductance (self inductance as well as mutual inductance between leads) and inductive cross talk can be decreased, thereby speeding up signal and data transmission (*see, e.g.*, page 11, lines 1-5; page 18, line 24 to page 12, line 4). The eddy current generated by the current flowing through a plurality of leads on a wiring board flows in a direction in which a magnetic flux is canceled (*see* eddy currents Is depicted in Fig. 2; page 10, lines 6-16)). These effects are significant and unexpected in view of the prior art.

The Examiner alleges that **Anderson** discloses that the distance (H) between the wiring section (conductor 12) and the film (ground plane 16) is 3.3 mils (83.8  $\mu\text{m}$ ), citing col. 4, line 8, and alleges **Anderson** disclose other dimensional parameters intended to reduce cross talk (citing col. 3, lines 50-54; col. 4, lines 55-70).

However, **Anderson** does not teach or suggest, among other things, "a distance defined between the wiring section and the electromagnetic shielding film is 50  $\mu\text{m}$  or less", as claimed. As shown in Fig. 2, the eddy current is generated on the metal foil (electromagnetic shielding film) 17. The eddy current cancels the magnetic flux of a magnetic field H generated around the wiring section 13, thereby reducing the cross talk

between the each leads of the wiring section 13. The magnetic flux reducing effect cannot be expected from simply disposing the electromagnetic shielding film 17 on the insulating film 16. The magnetic flux reducing effect is realized only when the distance defined between the wiring section and the electromagnetic shielding film becomes sufficiently small (e.g., as claimed). Accordingly, in the present invention, the distance defined between the wiring section and the electromagnetic shielding film is limited to be 50  $\mu\text{m}$  or less, so as to provide the magnetic flux reducing effect of the eddy current.

Therefore, **Anderson** does not teach each and every element of the claimed invention.

**Anderson** also does not suggest each and every element of the claimed invention. The case law has cautioned against focusing on the obviousness of the *differences* between the claimed invention and the prior art rather than on the obviousness of *the claimed invention as a whole*, as 35 U.S.C. § 103 and *Graham v. Deere* require. See, e.g., *Hybritech Inc. v. Monoclonal Antibodies, Inc.*, 231 USPQ 81, 93 (Fed. Cir. 1986). As stated in MPEP § 2141.02, “the question under 35 U.S.C. § 103 is not whether the differences themselves would have been obvious, but whether the claimed invention as a whole would have been obvious”. *Stratoflex, Inc. v. Aeroquip Corp.*, 713 F.2d 1530 (Fed. Cir. 1983) (emphasis in original). “[I]t is this invention *as a whole*, and not some part of it, which must be obvious under 35 U.S.C. § 103”. *In re Antonie*, 559 F.2d 618, 620 (CCPA 1977) (emphasis in original).

The claimed relation between the insulation board and the electromagnetic shielding film, in combination with the remaining claim elements, yields a reduction in magnetic flux, line inductance and inductive cross talk, thereby speeding up signal and

data transmission. **Anderson** do not suggest any relation or benefit arising from the distance between the insulation board and the electromagnetic shielding film. Instead, **Anderson** teaches that *balancing*  $C_m/C_s$  and  $L_m/L_s$  to be equal to thereby make  $K_F$  substantially 0 will reduce forward wave cross talk. However, in **Anderson**, the distance between the conductor and the ground plane is larger than that in the claimed invention and, even if eddy currents are generated on the ground plane, the eddy current in **Anderson** will be much smaller than that of the present invention and, accordingly, the magnetic flux reducing effect of the claimed invention cannot be achieved.

Reconsideration and withdrawal of the 35 U.S.C. § 103(a) rejection of claim 1 is requested.

#### CONCLUDING REMARKS

As the Examiner's 35 U.S.C. § 103 rejection of claim 1 has been overcome and the applied art obtained in the Examiner's first search (i.e., attachment to Paper No. 9), which should have covered the invention as described in the specification, as well as the invention claimed and the inventive concepts toward which the claims appear to be directed (see, e.g., MPEP § 904), does not teach or suggest each and every element of claim 1, claim 1 is submitted to be patentable over the cited art and allowance is requested.

Since the 35 U.S.C. § 112 rejections of claims 5-9 have been demonstrated to comply with the requirements of 35 U.S.C. § 112, and no substantive rejection remains, allowance of claims 5-9 is respectfully solicited.

New claims 10-14 correspond to claims 5-9 and recite additional limitations not present in claims 5-9. Therefore, claims 10-14 are submitted to be patentable for at least the reasons claims 5-9 are patentable.

Issuance of a Notice of Allowance for claims 1 and 5-14 is therefore solicited.

The Examiner is respectfully requested to contact the undersigned, if it believed that such contact would further the examination of the present Application.

To the extent necessary, a petition for an extension of time under 37 C.F.R. 1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account 500417 and please credit any excess fees to such deposit account.

Respectfully submitted,

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**VERSION WITH MARKINGS TO SHOW CHANGES MADE**  
**IN THE CLAIMS**

Please amend claim 1 as follows:

1. A wiring board for a semiconductor device, comprising:  
a predetermined wiring section being disposed on an insulation board; and  
an electromagnetic shielding film being placed at a position close to said wiring section,  
wherein a distance defined between, said wiring section and said electromagnetic shielding film is [150] 50  $\mu\text{m}$  or less, a volume specific resistance of said electromagnetic shielding film is 30  $\mu\Omega\cdot\text{cm}$  or less at room temperature, and  
wherein, over an applicable frequency between about 10MHz to 15GHz, and inductance of said wiring section and inductive cross talk are reduced.